

Type and five paratypes mounted on card points and one paratype on a slide. Also antennae and mandibles of a seventh paratype mounted on a slide. All of these specimens were taken in August, 1918, crawling over the body of what is believed to be the prepupal larva of *Epargyus tityrus* collected by Dr. W. M. Mann. Although there is no positive proof to support the assertion that the species is parasitic upon *Epargyus*, it is likely that these females were upon the caterpillar for the purpose of ovipositing.

DESCRIPTIONS OF THREE PARASITES OF *AGRILUS ANGELICUS* (HYM.).

BY S. A. ROHWER, *Bureau of Entomology.*

In a lot of Hymenopterous parasites of *Agrilus angelicus* Horn, recently submitted by H. E. Burke, were three new species. As it is desirable that their names be available, descriptions are presented herewith.

Genus *Ptinobius* Ashmead.

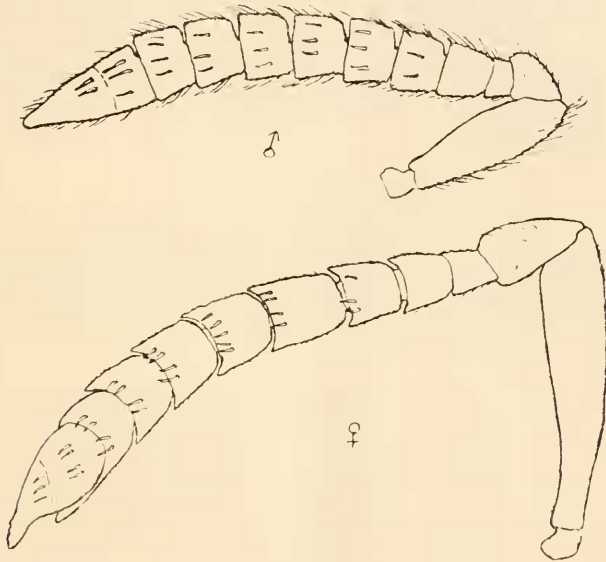
The antenna of the species of this genus has never been described and since they are unusual I take this opportunity to publish a figure of the antenna of each sex. The terminal joint is practically without sutures and the antenna appears to be eleven-jointed.

Key to the species.

1. Propodeum covered with thimble-like punctures—*magnificus* (Ashmead)
Propodeum smooth, polished..... 2
2. Hind femora metallie; a dusky band below the marginal vein.....
.....*californicus* Crawford.
Hind femora mostly ferruginous; area below the marginal vein hyaline..... 3
2. Hind femora metallie; a dusky band below the marginal vein.....
.....*californicus* Crawford.
Hind femora mostly ferruginous; area below the marginal vein hyaline..... 3
3. Ocellocular line half as long as the interocular line; lateral furrows of propodeum foveolate; area along median carina of propodeum punctured; the spot below the end of submarginal vein joining the band below the postmarginal vein.....*texanus* Crawford.
Ocellocular line more than half as long as interocular line; lateral furrows of propodeum not foveolate; area along median carina smooth; spot below end of submarginal vein separated from the band below the postmarginal.....*agrili* Rohwer.

Ptinobius agrili, new species.

Female.—Length 4.25 mm. The anterior margin of the clypeus slightly reflexed, medianly with two grooves which converge dorsally so if continued they would meet between the antennae; head reticulate, below the middle of the eyes the reticulation tends to become concentric from the clypeus; ocelli in a low triangle, the interocellar line somewhat longer than the ocellular line which is subequal with the greatest diameter of a lateral ocellus; seen from in front the inner margins of the eyes are parallel dorsally but sharply divergent below the middle; antenna as in figure; notum reticulato-punctate, more coarsely so on scutum and axillae; pronotum twice as wide as posterior width; propodeum polished, with a strong median carina; spiracles oval,



ANTENNA OF *Ptinobius agrili* ROHWER.

twice as long as wide; prepectus and mesopleurae reticulato-punctate; metapleurae smooth shining dorsally, rather feebly sculptured ventrally; hind coxae very large, shining, but covered with reticulations; first tergite and apical margins of the following smooth and shining; basal middle of the second tergite, most of the third, fourth and fifth, reticulato-punctate; sixth tergite shining but with setigerous punctures. Head and thorax bronzy green, abdomen green with purplish reflections; antennae, except black apical joint, and legs beyond coxae, except a metallic green spot on apices of hind femora exteriorly, ferruginous; wings hyaline with a dusky spot below end of sub-

marginal, and a dusky band, which is broader in middle, below postmarginal; submarginal vein yellowish, remaining veins pale brown; body sparsely clothed with white hair.

Male.—Length 2.5 mm. Besides the usual sexual and secondary sexual characters, the male differs from the female only in having the sculpture more decicate. Head and thorax metallic green with a bronzy tint; abdomen metallic blue; legs, except the yellowish tarsi, metallic green; scape green, remaining joints black; wings hyaline with an elongate dusky spot which extends nearly across wing below postmarginal.

Type locality.—Palo Alto, California. Described from one female (type) and one male (allotype) reared from twigs of *Quercus agrifolia* infested by *Agrilus angelicus* and recorded under Bureau of Entomology No. Hopk. U. S. 12707a^{8c}. Material collected and reared by H. E. Burke. Also one paratype female reared from twigs of *Quercus agrifolia*, infested by *Agrilus angelicus*, collected by A. G. Smith at Pasadena, California.

Type.—Cat. No. 21994 U. S. Nat. Mus.

Dinotus agrili, new species.

This new species runs satisfactorily to the genus *Dinotus* in both Ashmead's and Kurdjumov's keys and agrees well with a European specimen of this genus received from G. Mayr. In the American species the stigmatal vein is somewhat less widened and the abdomen is more ovate.

Female.—Length 2.5 mm. Head reticulato-punctate, more finely so on the vertex; interocellar line distinctly longer than the ocellular line but not half as long as the postocellar line; antenna with three ring joints, the first funicle joint distinctly longer than any of the following which are of subequal length; club not prominent, broadly lanceolate, three jointed, the first two joints subequal the third shorter; pronotum narrow, sharply truncate anteriorly; mesonotum reticulato-punctate, the scutellum somewhat more finely so; propodeum shining, median and lateral carinae prominent; mesepisternum and sides of propodeum reticulato-punctate; abdomen ovate, acute apically, shining; stigmatal vein greatly thickened apically the thickened part nearly trapezoidal in outline, the outer side of the vein but slightly thickened. Bronzy green with the bronze more prominent on scutellum and middle of the abdomen; scape, tibiae (except faint basal infuscation on the hind pair) the tarsi ferruginous; apices of hind tibiae whitish; wings hyaline, venation pale brown.

Type locality.—Pasadena, California. Described from four females (one type) reared by H. E. Burke from twigs of *Quercus agrifolia* infested by *Agrilus angelicus* collected by A. G. Smith.

Material recorded under Bureau of Entomology No. Hopk. U. S. 13068a^{4x}.

Type.—Cat. No. 21993 U. S. Nat. Mus.

***Doryctes maculipennis*, new species.**

The spotted wings will readily distinguish this species from any of its allies. Ashmead had given this species a manuscript name after one of its hosts, but since it has more than one host it seems to be desirable to chose a different name and I know of no Braconid which can more appropriately be called *maculipennis*.

Female.—Length 3.5; ovipositor beyond abdomen 1.25 mm. Head slightly narrowing posteriorly, smooth and shining, practically without punctures; dorsal aspect of pronotum granular; scutum granular with faint aciculations laterally, and medianly irregularly roughened; suture in front of the scutellum without regular rugae; scutellum more shining than the scutum, with a few raised lines; propodeum shining dorsally and with fine, scattered punctures; median and transverse carinae rather well defined; mesepisternum mostly smooth and shining; first recurrent one-fifth its length basad of first intereubitus; second intereubitus obsolescent; second and third abeissae of radius subequal in length; nervulus postfurcal by nearly its length; first two and base of third tergites granular and in addition with irregular wrinkles which are stronger basally; apical part of third and all the remaining tergites smooth and shining; ovipositor about half as long as the abdomen. Black; legs and an obscure U-shaped band on second tergite piceous; wings hyaline, the anterior wing with many fuscous spots arranged thus; along basal and extending into submedian cell apically, along first abeissa of cubitus, on both sides of first abeissa of radius and in first eubital behind first intereubitus, longitudinal line in second cubital, subcircular spot a basal middle of third cubital, subquadrate spot at anterior middle of radial, spot on both sides at apex of radius, spot in apical middle of third cubital, two spots in branchical cell, one near base and other near apex, and both sides of recurrent; venation dark brown. Body sparsely covered with rather long white hair.

Male.—Length 3.5 mm. Other than the usual sexual differences agrees with the female.

Paratypes show that the strength of the irregular lines on the tergites varies with the size of the specimen, and that the exact size of the fuscous wing spots may vary. In one specimen the apical spots are so enlarged as to be almost confluent.

Type locality.—Shingle Springs, California. Described from two females (one type) and two males (one allotype) reared from cocoons taken in the larval mines of a species of *Anthaxia* working in redbud (*Celtis reniformis*). Material collected and reared by H. E. Burke under Bureau of Entomology No. Hopk. U. S. 12719 b¹ (type and two males) and 12719 b².

Other localities.—Palo Alto, California. Three females and three males recorded under Bureau of Entomology Nos. Hopk. U. S. 12707 *e*¹ and 12707 *e*³. Material collected and reared by H. E. Burke who notes it is parasitic on *Agrilus angelicus* living in twigs of *Quercus agrifolia*. Chirichaua Mountains, Arizona. Two females and three males reared by H. G. Hubbard under his number 7451° which states it is parasitic on *Chramesus* n. sp., mining in *Robinia neomexicana*.

Type.—Cat. No. 21991, U. S. Nat. Mus.

STUDIES ON THE DRY CLEANING PROCESS AS A MEANS OF DESTROYING BODY LICE.

BY R. H. HUTCHISON AND W. D. PIERCE, *Bureau of Entomology.*

At the request of Dr. H. E. Mechling, Chief of the Dry Cleaning Branch, Salvage Division, in the office of the Director of Purchase and Storage, Q. M. C., U. S. Army, we have undertaken a series of tests to determine the efficiency of the dry cleaning processes as a means of freeing garments of the body lice, *Pediculus humanus*, var. *corporis* (*vestimenti*). In this work we were influenced by the following consideration; namely, that there is serious objection to treatment of wool uniforms, overcoats or other woolen dress goods by steam under pressure on account of the resulting shrinkage and actual damage to the material. Fulton and Staniford¹ have shown how the steam sterilization method can be modified to avoid such damage, but their process requires very careful observation and a skilled operator. If, then, the dry cleaning process is effective in destroying lice and nits, it is unquestionably a better practice for the treatment of infested woollens in that there is no tendency to shrinkage nor damage to the goods, while in addition cleansing and sterilizing is effected.

We include in this article the substance of our reports to Doctor Mechling concerning the practical dry cleaning experiments and have added the results of certain laboratory tests made to elucidate certain points which came up in the course of the work. It is published with the hope that it will be of interest and of some value, not only to those concerned with the care of the soldiers during demobilization, but also to quarantine, immigration, jail, hospital, and public health officials who may have to consider delousing measures in the course of their work. Our results will also serve to correct erroneous impressions which may have been

¹ Fulton, D., & Staniford, K. J. The Sterilization of Woolen Blankets and Uniforms. *Journ. Am. Med. Assn.*, vol. 71, no. 10, pp. 823-824, Sept. 7, 1918.